

7. RESEARCH AND DEVELOPMENT EXPENDITURES

Technological innovation has accounted for at least half of the Nation's productivity growth in the last 50 years. We enjoy the fruits of this innovation every day in the many technologies we have come to depend on for our way of life, including lasers, computers, x-rays, teflon, weather and communication satellites, jet aircraft, microwave ovens, solar-electric cells, and human insulin. These advances have generated millions of high-skilled, high-wage jobs and significantly improved our quality of life. Because our investments in research

and development (R&D) have paid such rich dividends, the Administration is proposing \$72.7 billion in R&D activities in 1998. Of this total, civilian R&D will be funded at \$34.3 billion, a \$1.2 billion or four-percent increase over 1997 and an 18-percent increase since 1993. University-based research will increase to roughly \$12.9 billion, a \$529 million or four percent increase over 1997. Chapter Four of the *Budget* includes a discussion that contains more information on R&D activities.

Table 7-1. FEDERAL RESEARCH AND DEVELOPMENT EXPENDITURES

(Outlays, dollar amounts in millions)

	1993 ¹ actual	1997 estimate	1998 proposed	Dollar change 1997 to 1998	Percent change 1997 to 1998
By Agency:					
Defense	38,035	36,902	35,479	-1,423	-4%
Health and Human Services	9,660	12,323	13,169	+846	+7%
National Aeronautics and Space Administration	8,885	9,182	9,308	+126	+1%
Energy	6,945	6,540	6,746	+206	+3%
National Science Foundation	1,842	2,448	2,448	0	0%
Agriculture	1,455	1,522	1,539	+17	+1%
Commerce	607	885	841	-44	-5%
Interior	636	590	600	+10	+2%
Environmental Protection Agency	519	494	527	+33	+7%
Other	1,736	1,928	2,009	+81	+4%
Total	70,320	72,814	72,666	-148	0%
By R&D Theme:					
Basic Research	12,625	14,625	14,882	+257	+2%
Applied Research	12,437	14,252	14,540	+288	+2%
Development	42,625	41,408	40,503	-905	-2%
Equipment	NA	973	993	+20	+2%
Facilities	2,633	1,556	1,748	+192	+12%
Total	70,320	72,814	72,666	-148	0%
By Civilian Theme:					
Basic Research	11,370	13,494	13,729	+235	+2%
Applied Research	8,511	10,212	10,569	+357	+3%
Development	7,374	7,651	8,211	+560	+7%
Equipment	NA	530	539	+9	+2%
Facilities	1,749	1,217	1,282	+65	+5%
Subtotal	29,004	33,104	34,330	+1,226	+4%
By Defense Theme:					
Basic Research	1,255	1,131	1,153	+22	+2%
Applied Research	3,926	4,040	3,971	-69	-2%
Development	35,250	33,757	32,292	-1,465	-4%
Equipment	NA	443	454	+11	+2%
Facilities	885	339	466	+127	+37%
Subtotal	41,316	39,710	38,336	-1,374	-3%
R&D Support to Universities	10,463	12,364	12,893	+529	+4%

NA = Not applicable.

¹ Equipment and Facilities were not collected separately in 1993.